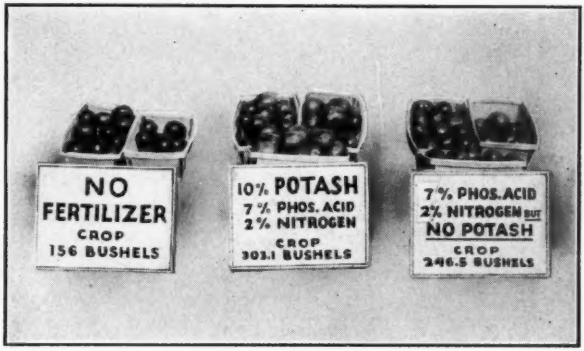
Better Crops

The Pocket Book of Agriculture.

July 1925 10 Cents

Does It Pay To Raise Quality Crops?—Prize-Winning Answer in This Issue—Many Other Big Features



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Tomatoes—like other truck crops—feed on certain plant foods in the soil. Where these plant foods are available in the needed quantities, the crop is heavy; but where the plant foods are scarce, the crop is scant.

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POTASH

Better Crops

The Pocket Book of Agriculture

VOLUME IV NUMBER FIVE

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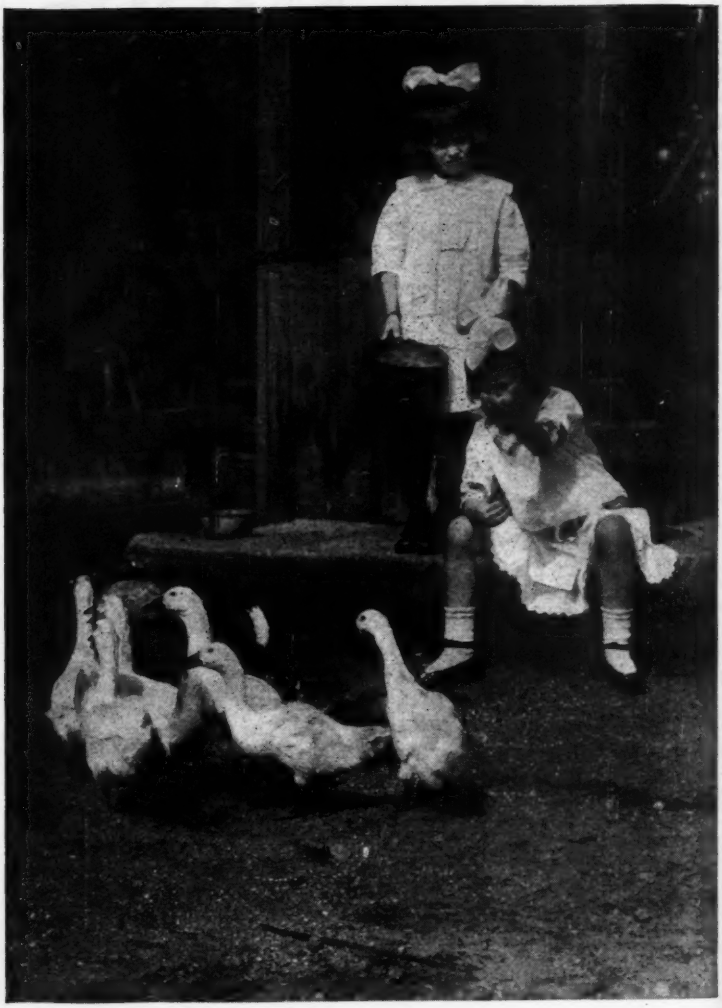

"Don't be scared"

Better Crops

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VOL. IV NEW YORK, JULY, 1925 NO. 5

How Many Leaves *on an* Apricot Tree?

By *Lloyd Austin*
Division of Pomology, University of California

An ingenious and unusual experiment which gave interesting results.

THE question "How many leaves on an apricot tree," reminds us of our childhood days when we used to wonder just how many leaves a tree did have, along with the question of "how many stars in the sky." Both queries went unanswered, as we did not care to attempt to actually count them. At first thought the problem as to the number of leaves on a tree might not seem to merit serious consideration. Yet, if we wish to really understand the responses of fruit trees to the various cultural operations, such as pruning, fertilizing and cultivation, we need to know all we can about the leaves. And why? Because the leaves are the tree's food factories. The larger the leaf area of a tree, the more plant food it can manufacture for use in the growth of the fruit and of the new shoots and spurs.

It will be interesting to see just how the leaves function in the normal activities of the tree. We know that trees, like other plants, have two sources from which they obtain the elements which they need. From the soil the trees take up, through their roots, water and mineral elements dissolved therein. Among the most essential of these are potassium, phosphorous and nitrogen, which are the ones most commonly supplied in the fertilizers that we use to correct soil deficien-

cies. These crude food materials are transported to the leaves by the conducting vessels of the trunk and branches. The leaves absorb carbon dioxide from the atmosphere. In the presence of sunlight and of the chlorophyl in the leaves, the carbon dioxide combines with the water from the roots to form sugar, which is the basic substance from which all plant foods are derived. The mineral elements are utilized in the formation of proteins and other complex products. Thus we see that the elaborated plant foods required by the tree are made in the leaves, which are, therefore, essential to its growth and fruiting.

We can now appreciate the fact that the efficiency of an orchard tree may well depend upon the number of leaves which it has, or more accurately speaking, upon its leaf surface. This point is of special interest in connection with the pruning problem.

In years past it was the custom in California to give bearing fruit trees a severe annual pruning, consisting of a thinning out and heavy cutting back of the new growth—in other words, short pruning. This was done almost without regard to the kind or condition of the tree. Today progressive orchardists are coming to realize that maximum returns can only be secured by adapting the pruning to the needs of the trees. Some trees need heavy pruning; others rebel against such treatment, and show their dislike for it by refusing to fruit as they should.

IT is often difficult to understand why different trees should respond so differently to the same operation. The writer thought that a study of the relative number and distribution of leaves on trees pruned in different ways might throw considerable light on the subject. Accordingly it was planned to determine the leaf area of four five-year-old apricot trees at several different periods during the growing season. The trees used were in the experimental pruning blocks at the University Farm. Two of the trees had been short pruned since the beginning, while the other two had been pruned by the method commonly designated as long pruning, and consisting mainly in a thinning out, with an occasional cutting back to laterals.

In order to determine the leaf area of a tree it is first necessary to actually count the number of leaves on the tree. This might seem like an almost hopeless task, but it was facilitated by the use of a little device which recorded the counts as one went along.

The average size of the leaves must also be known to accurately obtain the total leaf area of a tree. A hundred typical leaves were secured from each tree and the area of each was determined by the use of the very ingenious instrument called a planimeter. By simply tracing around the leaf with the point of this instrument, one can read off the *area* of the leaf in square inches (not the circumference as one might suppose). The total leaf area of a tree would naturally be the average area per leaf multiplied by the number of leaves on the tree.

The leaves on all four trees were counted at three different times during the summer. The first count was made during the first week in April, when the new shoots were only a few inches long. The leaves were counted again early in May, and finally during the first week in October, supposedly at the time of maximum leaf area.

NOW as to the answer to our original question, "How many leaves on an apricot tree?" We find that the answer depends not only upon the pruning treatment which the tree received, but also upon the time when the count was made. The number ranges from about

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Building a "For Service" Organization

By Wayne Bishop

¶ Starting a local Farm Bureau is no easy job, but this one went over big because it was started right.

LATE in the year of 1923 ten progressive farmers of Columbia County, Washington, received an invitation to dine with the secretary of the Walla Walla County Farm Bureau at the Dayton Hotel. So along about noon they put on a clean shirt and a pair of overalls, and climbing into their Fords hit out for the feed.

They enjoyed themselves immensely and not only did they receive an excellent dinner, but also a bright alluring vision of a service they might render their fellow citizens and themselves. Their host spoke interestingly and convincingly on the subject of farmer's organizations and their benefits. He told them how to organize their farmer friends, when to do it, and where to get any further help they might need. In fact, he went a step further and had these men organize themselves into the Columbia County Farm Bureau.

From that time on those men talked Organization-Farm Bureau-Cooperation to all their farmer associates and soon additions were made to this little group. A few weeks after the dinner a county meeting was held where officers were elected for 1924, and a generous program was adopted part of which was a goal of 300 members during the year. So with this little group as a motivating power the Farm Bureau rolled onward and onward gathering, contrary to the proverbial stone, more and more members as it rolled.

DURING those first active months, in the winter of 1924, most of the emphasis was put on the social phase of organization. The County was divided into seven divisions, each usually centering around a school district, making a rural school house available for the farmer's meeting place.

Meetings were held each week where the people were entertained by programs and discussions of interesting topics. Each division had a special feature such as a negro minstrel or humorous play, and the participants made the rounds of the other six divisions and shared it with them. Not only were the social activities of the

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The contest announced in our May issue produced a number of excellent manuscripts. If space permitted I should like to publish every one, for I found every one worth reading. After careful deliberation Mr. Pillard and myself selected Mr. Blackwell's answer as the best. We are also publishing Mr. Hawkin's and Mr. Young's contributions as having special merit and would like to mention the answers submitted by Paul Tabor, Stewart Leaming, F. Joe Robbins and J. William Firor for their outstanding excellence.

Jeff

Does It Pay to Raise Quality Crops?

Prize-Winning Article

By C. P. Blackwell

Soil Improvement Committee, Atlanta, Ga.

THE writer believes that it generally pays to raise quality crops but sometimes it does not pay. For this reason we believe a farmer needs to use a bit of judgment relative to how much money he spends to produce a quality crop. How well it will pay to raise a quality crop depends on how much the consumer is willing to pay for a quality product. It also depends on marketing facilities and machinery for classifying and shipping a product to the consumer who is willing to pay a premium for quality. There are places in the United States where marketing facilities are poor and where wheat is wheat and worth $1.40 per bushel; cotton is cotton and worth 20c per pound; eggs are eggs and worth 40c per dozen. In these places quantity is the only thing that brings in any money, and it will not pay a farmer to sacrifice quantity for quality on such a market. There are other places where a premium is cheerfully paid for a product of superior quality.

As a general rule, the trouble in securing a premium for quality is in the marketing end and not inherent in the consumer. The consumer is a factor, however. Naturally people prefer fresh eggs to stale ones, but there are some who admit their preference for the fresh eggs but refuse to pay the price either because they have a dislike for parting with their money or because they have not the money from which to part. Most people also prefer to eat

peaches that are known to have no worms, but occasionally we find a fellow who is willing to take a chance rather than pay a premium.

I believe that all cotton goods manufacturers admit that a well bred cotton of uniform staple is better in every way and gives less waste than ordinary irregular cotton, but many of them will not pay a premium for this quality. The same may be said about length of staple. Generally, however, a farmer may secure a premium for staple cotton if he has proper marketing facilities available.

THE best example we have ever known of quality paying was the case of a certain well known South Carolina farmer who raised quality cotton. We have not the permission of this man to use his name but his name is well known to agriculturists throughout the country. We personally believe the statement which he made to us to be true because we know his farm and saw his crop. In 1919 he had one field of 60 acres in long staple high quality cotton. We forget his exact figures, but remember the total distinctly. He produced nearly two bales of this high quality cotton per acre and sold it for slightly more than a dollar per pound. He said he actually sold the cotton from this 60-acre patch for $60,000. He had a good crop on his general field the same year but this was his best land and produced his best cotton. The same yield of ordinary cotton have brought only about $400 per acre, or $24,000. So a quality crop on this 60-acre tract of land made this farmer a profit of something like $36,000 in one year. This is the most striking case the writer has ever known of the value of a qulaity crop.

There are many other examples in the South where quality pays. Fortunately most of our southern crops are crops that do pay a premium for quality. This is especially true of our tobacco, peaches, apples, tomatoes and many other cash crops.

It is not uncommon to see a pile of tobacco sell for 60c or 75c per pound and another pile the same day and grown on an adjoining field sell for 10c or 15c. Quality tobacco nearly always pays wonderfully well. Quality cotton generally pays well. Quality fruit and truck crops nearly always pay well.

South Carolina Experiment Station Bulletin 219, gives data showing that a variety of long staple cotton, Deltatype, was worth $29.08 per acre more than ordinary short staple cotton as an average of two tests each running four years. These were years, too, in which high premiums were not paid. That is $29.00 per acre net profit for the production of a quality crop of cotton.

It costs more to grow quality crops. Quality crops must be well bred, well fertilized, well cultivated and carefully graded. This makes them cost more, but there is little doubt but that cash crops of quality pay better, if we have anything like proper marketing facilities through which to place them in the hands of the consumer.

Fulghum Oats Return $15,000 Extra Profits

By E. W. *Hawkins*
County Agent, Clark County, Ohio

FROM a meager start with 30 acres of Fulghum oats in 1922, Clark County, Ohio, farmers received $18,000 extra oats money in 1924 from 3,000 acres of this improved

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MAKING PEAT

By A. A. Burger

THE land in the upper Mississippi valley is overlaid with a soil that many have thought was inexhaustible. It is without question, one of the richest areas of land in the world, and yet today it is all too evident that crop production is not what it should be; this is especially true of certain farms where no attention has been given to "keeping up the land." Many thousands of analyses made of this soil indicate that there is in most cases plenty of nitrogen and potash, but that in many places phosphorous is the limiting element. We have found out that lime on most of our soils, and that manure and plant residues, on all soils, are basic fertility requirements.

But there are some farms in this great region, and this is especially true of certain sections in Iowa, Minnesota, Wisconsin and the northern part of Illinois, where potash is the limiting factor. This is not the general condition, but there are nevertheless areas of limited size throughout this section where there is a deficiency of potash, and the result is that the decreased yields of these sections have the effect of decreasing the general average of the yield of the entire crop.

These potash-deficient soils are generally to be found on what are known as peat deposits. This soil has been formed by the decay of plants for organic matter, and it is usually to be found in, or especially around the edges of low, flat or at one time, low boggy places or ponds. Sometimes they are found after all traces of the wet, swampy nature of the land has disappeared —strictly speaking in such places that have been well tiled.

IN 1900, Nathan Northey came to Waterloo, Iowa, and shortly

On the right potash was used; on the left, where none was applied, there was not even the sign of a weed to show that the land was productive.

SOILS PRODUCTIVE

(Mr. Burger is a former county agent and speaks here from long experience.

after purchased several farms in that vicinity. On some of these he found some low, flat land. This in time was drained. This land appeared to be very fertile, and being new land he was very much surprised to find that there were certain crops that did not do well. Naturally, the first crop was corn; but to his surprise corn did not do well; in fact, there were places where the corn refused to grow at all, and where the ground at husking time was as bare as a floor—not even the evidence of a weed. A little farther out on the edges of these patches, where some of the heavier clay soil had washed in there was a little corn. Perhaps it grew from six to eighteen inches in height, but in a short time it took on a rather sickly, yellow, sometimes a slightly reddish color, and it either died in July or August or made no further growth. Mr. Northey was not the type of man that could be easily bluffed out. He had rather inquistive turn of mind, and he determined to find out what was the matter. If possible, he intended to make these spots productive.

From his knowledge of land, he knew that this light, soft, fluffy black soil, which never baked, had all of the characteristics of peat; and he knew that peat soil was deficient in potash. So he decided to apply some potash; first, to find out whether it would improve the crops; and, second, whether its use would be profitable and practical. He wasn't farming for his health alone, but for profit. When the neighbors found out what he was doing they made fun of him. They thought that he was an ultra scientific man, a town man without practical judgment. They laughed at what they thought was book farming. "Your land is no good," they said,

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A 92-bushel yield of Iowa oats where potash had been applied three years before.

Selling an AGRICULTURAL IDEA *by* MAIL

By P. H. Stewart
Nebraska College of Agriculture

¶Have you ever tried enlisting the postman in putting over projects? Here is one successful instance that could be adapted to a number of other projects.

DID you ever clip off a corner of an advertisement for a set of books, the ownership and reading of which would, so the ad said,—put you in the $10,000. salary class? Or, if you are one of those rare fellows to whom finance has but a remote attraction, perhaps you have returned a slip which promised to tell you how you might, by spending only eight minutes a day, learn to discuss deeply on any subject which might be broached by the village school ma'am, the parson, the druggist, the president of the Farm Bureau, or anyone else.

If you ever answered one of these advertisements, and you may as well admit that once you did,—do you remember the inflow of letters that followed? Perhaps letter No. 1 stated that they were glad you were interested; letter No. 2 followed and further developed the idea that you needed these books, while letter No. 3 and all the rest that followed attempted to make you feel that your future was blasted, your advancement ruined, and all would be lost if you did not buy the books. If you didn't finally buy, probably you were the exception, because evidently a goodly number do buy or this form of follow-up selling would not be continued by commercial concerns.

In some of our Nebraska Counties for the past two years we have made an effort to use this same sort of a selling idea in our Agricultural Extension work. Not that we wanted to make ourselves as obnoxious as a book agent or to become a pest to the farmers, but

we wanted to put across an idea which we felt was a sound one, the general adoption of which would be of state-wide benefit.

FIRST,—let us get the setting. Nebraska's farms, just as is true of those of similar states, are gradually losing their organic matter and nitrogen. Using virgin sod land as a basis it can be said that the average eastern Nebraska farm soil, especially on rolling land, has lost from 20 to 30 per cent of its organic matter, while many eroded farms and fields have lost as high as 50 to 60 per cent. It is unnecessary here to give the reasons why this loss is a very serious one from the standpoint of soil fertility, erosion, and the soil tilth and management. Legume crops and farm manure are, of course, the mainstays for maintaining organic matter.

Although Nebraska ranks right at the top of the list of states in alfalfa acreage and is among the leading sweet clover states, with also a very appreciable amount of red clover, the per cent of cultivated land in all legume crops is not as high as it might profitably be. Instead of having about seven per cent of the cultivated land in legumes, as is now the case, those who have studied this proposition figure that this percentage might well be doubled. It was, then, to sell the idea that our Nebraska soil problem is largely one of organic matter maintenance and that more legumes should be grown, that a series of four letters were composed, for mailing to farmers in certain counties.

The letters were so written by the subject matter specialists that they would cover a number of counties having similar problems. They were printed on the regular Farm Bureau stationery of the county in which they were to be used and were signed by the local County Agent. The plan was to start with letter No. 1, followed at intervals of a week or two by letters No. 2, 3 and 4. Letter number four enclosed a return addressed card and was also arranged so that the recipient might check certain bulletins on soil erosion, alfalfa or sweet clover, or on which he might ask for a call for assistance on terracing, building brush or soil-saving dams, or in working out the best method of seeding legumes.

YOU may be skeptical as to the number of cards that were returned to the County Agents. Take Custer, a large central Nebraska county, having a rolling, fertile loose soil, but one on which soil erosion is a problem. In this county M. L. Gould, the County Agent, had more than 100 cards returned asking for bulletins and definite help on certain problems. "I never had a project" said Jerry Gould, in reporting on this *More Legume Crops—Erosion Campaign*, "that created such widespread interest and from which I got so many good responses and contacts from all parts of the county. Fortunately for us this year these letters were sent out in late winter and early spring when roads were practically impassable and it was impossible for us to hold meetings or do any organization work. The mail man did the work for me in selling *More Legumes* by mail."

A feature of these letters was that each one had at the top a picture which was the chief subject of the body of the letter. A farmer opening the letter saw the photograph and, once his attention was attracted, he stopped to see what it was all about. It is believed that this was an important and essential part of the letter campaign.

The following letter written in an attempt to create interest, in short pithy statements, was number one and was used to open the subject. Letter number two and three followed at intervals.

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The TIE that Destroys

By Albert A. Hansen
Purdue University Agricultural Experiment Station

¶A pest that threatens to be severe this year and how to deal with it.

ANNO DOMINI, Nineteen Hundred and Twenty-five promises to be a banner year for dodder. This judgment comes from the fact that of 531 samples of clover seed gathered at random throughout Indiana during 1924 and representing shipments from most of the clover seed-producing areas of the United States, 116 were found to be contaminated with dodder, while of 111 samples of alfalfa seed analyzed 33 were infested with the seeds of the pest.

Furthermore, more complaints were received against dodder during 1924 than at any time during the previous ten years, and we learn from B. F. Sheehan, former State Seed Commissioner of Idaho, that the encroachment of the pest is threatening the small seed industry of Idaho where it is found in virtually every seed-producing section of the state. And Idaho is one of the principal sources of clover and alfalfa seed in America.

This may not be as bad as it sounds, however, because Idaho is now engaged in a campaign against the pest that is materially reducing the dodder content of Idaho-grown legume seed. One of the methods that has been successfully used in the war against the parasite, is the use of arsenite of soda solution applied with a knapsack sprayer as soon as the dodder is noticed in the field.

This method reminds me of the story of the tramp and his wonderful soupstone. With the claim that his soupstone was capable of making excellent soup, he gained admittance to many a household. He placed the stone in boiling water, requested salt, pepper, vegetables and other ingredients of good soup which were added to the stone and the result was a very tasty soup, much to the astonishment of the curious housewife and the satisfying of the tramp's appetite. The arsenical spray is merely a soupstone, because similar results can be as easily obtained by cutting and burning the dodder patches. But the Idaho farmers supposed that the spray would be an easy method of eradication, purchased comparatively expensive knapsack outfits and sprayed diligently. When they discovered that they were well repaid for the time spent in ridding their fields of dodder, the spraying method became an established practice. The spraying outfit proved to be a good soupstone that is largely responsible for the improvement of Idaho clover and alfalfa seed.

We are also pleased to note that a dodder-destruction campaign has been launched in the alfalfa seed-production areas of Utah, where the dodder problem is looming large and serious. In Carbon County the problem was tackled by careful and systematic hand weeding of the dodder-infested alfalfa plants. One seed grower who treated half of a ten-acre field in this fashion, received

four cents per pound more for the seed from the cleaned area, which paid him handsomely for the extra work.

THE biggest factor in dealing with the dodder problem is the use of clean seed, but this is sometimes a difficult proposition because there is no practical method in use in America by which dodder can be separated from clover and alfalfa seed. Recently, however, a new separation method has been invented in England in which a magnetic powder that adheres to the rougher-coated dodder seed is the medium by which the noxious seeds are separated magnetically. We understand that an English company is now undertaking the manufacturing of the device and perhaps this will eventually solve the vexing problem.

For the present, however, when dodder has already been introduced on the farm, main reliance must be placed on keeping a sharp lookout for the appearance of the tell-tale yellowish patches that usually show up in clover and alfalfa during June and July. As soon as noted, the patches should be cut close to the ground, covered with straw or saturated with oil and burned without loss of time. This will prevent the formation of seed, which is an important consideration since once the soil is infested with dodder seeds, they may remain alive for an indefinite number of years, awaiting a favorable opportunity to attack future crops of legumes. Extension workers will do well to put a notice in the local paper this year advising their farmers to be on the lookout for the first appearance of the pest and suggesting the cutting-burning stunt. Of course, since dodder does not ordinarily attack corn, cereals, soybeans, cowpeas or velvet beans, these crops can be used on dodder-infested land, but they may not be convenient as a

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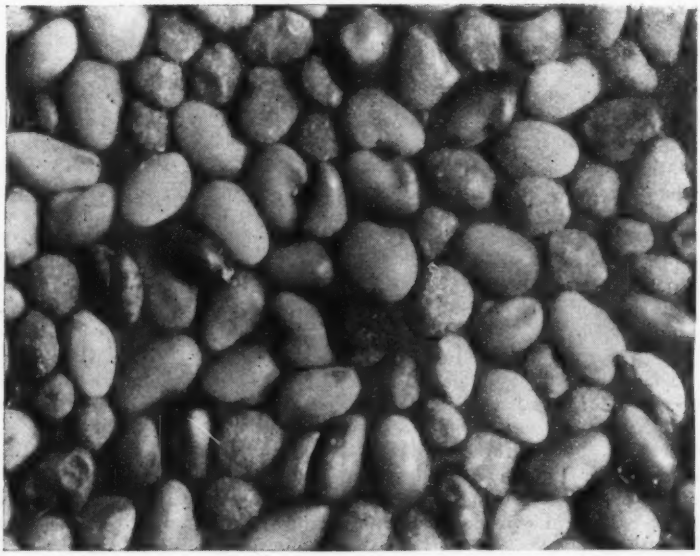

The common method by which dodder is introduced on the farm is by means of impure clover and alfalfa seed. Here is a bad mixture of clover and dodder.

BRAND Goes to New N. F. A.

By *Ted Butlar*

BETTER CROPS' Washington Correspondent

IN selecting for their Executive Secretary and Treasurer Mr. Charles J. Brand, the New National Fertilizer Association is to be congratulated on securing the services of one of the ablest men of the U. S. Department of Agriculture.

During the past two years, Mr. Brand has been Consulting Specialist in Marketing to the Secretary of Agriculture and chief of the Economic Section of the Packers and Stockyards Administration. This title, however, gives but a vague indication of the varied experience which Mr. Brand brings to his new position. Born and raised on a farm in Lac-qui-Parle county, Minnesota, he taught in the grade and country schools of South Dakota and Minnesota while preparing for college. After graduating from the University of Minnesota he was appointed Assistant Curator of Economic Botany at the Field Museum of Natural History in Chicago.

This was followed in 1903 by an appointment in the seed laboratory of the Bureau of Plant Industry, U. S. Department of Agriculture. Here he made rapid advancement. For six years he was in charge of clover and alfalfa investigations during which time he introduced many strains from foreign countries; discovered the value of the Peruvian alfalfa that yields one or two more cuttings per year than our ordinary kind in the hot, irrigated valleys of the Southwest and also proved the Grimm alfalfa of Minnesota, the most cold resistant kind in the world.

For the next three years he was in charge of paper plant investigations making pulp, paper, fiber board, etc., from corn, broom corn and cotton stalks, flax and rice straw, cotton hull fiber and many other waste materials. Following this he was placed in charge of cotton handling and marketing investigations and assisted in organizing among the first cotton cooperative enterprises and in establishing the Arizona-California long staple cotton industry.

AFTER a fruitful year of this work he was made organizer and chief of the U. S. Bureau of Markets. This bureau began in 1913 with about six men and an appropriation of $50,000 and in the six years of Mr. Brand's service grew to 2,000 men and $14,500,000 for regular and emergency work. In this position Mr. Brand started and supervised the work on market surveys, methods, costs, grades, city marketing and distribution; the Federal Telegraphic market news services on fruits, vegetables, livestock, meats and other products, operating over 15,000 miles of leased wires.

Many laws such as U. S. cotton futures, grain standards, warehouse, standard container, food products inspection and others were drafted under his supervision.

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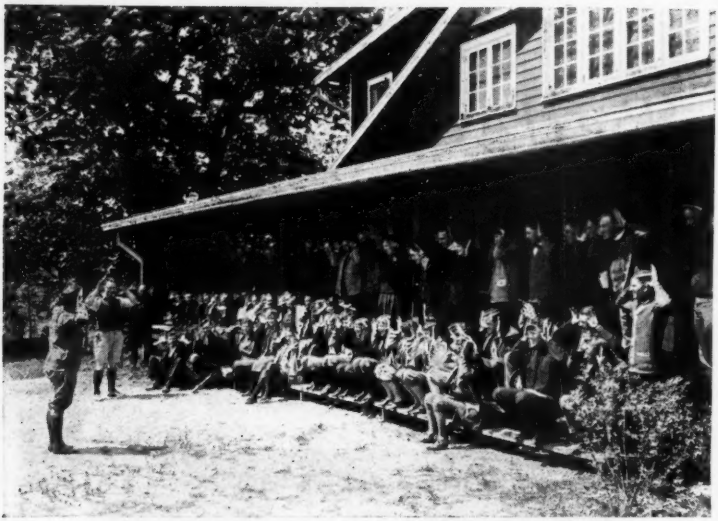
Better Crops' ART GALLERY of the month

Charles J. Brand, the recently appointed executive secretary and treasurer of the New National Fertilizer Association.



Training community leaders in Indiana camps under the auspices of the Agricultural Extension Department of Purdue University. Two successful camps were held last May which 214 persons from 54 centers attended. This picture shows one of our best known contributors, Albert A. Hansen, helping one of the girls to get her first experience as a song leader.

The Greenfield, Indiana, team were winners in the livestock judging contest at the Boys and Girls Club Round-up held for Indiana 4-H club members at Purdue University. They defeated the 48 other teams participating and secured permanent possession of the Kingan trophy because of their consistent work. This team was made up of George B. Simmons, Lester Duncan and Keith Elsbury, reading from the left. W. C. Kolb, teacher of vocational agriculture at Greenfield, and the county agent, M.E. Cromer, share the honors in coaching these teams

MIDDLEMEN *and* MILLENNIUMS

By *Lawrence Flournoy*

¶An amusing story that has a point worth meditating on.

LET us put the middlemen in jail and make a better world of this old earth. There are lots of them and it may take a few additional jails but it will be worth it. We can then put them at productive labor. They can make nice little baskets for the farmer to use in carrying his produce to market. They can make good strong jute sacks into which the farmer can put his potatoes. They can build rock bound roads over which the farmer can drive to market, stopping along the way to jeer at the prisoners and to rattle the coins which he will find in his pockets now that the robbers are out of the way.

What is the provocation for banishing the middleman?

This noon I stopped at the push cart of a street vendor and bought two apples which cost me five cents each. The farmer not over ten miles from here cannot sell his apples for over fifty cents a bushel. The shirt which I am wearing cost me two dollars and a half and the farmer who grew the cotton received but twenty-five cents a pound for the cotton and there cannot be over a pound of it in the shirt. The bread which I had at breakfast this morning was purchased at nine cents for a pound loaf and the farmer receives less than three cents a pound for his wheat.

My dollar, the experts tell me, causes a scramble among those engaged in the marketing of agricultural products similar to the scramble caused by throwing pennies into a crowd of small boys. When I look at some of the charts which the economic experts have compiled, it seems that the farmer must be small and timid and that some husky brute of middleman with a bullying attitude and a long arm reaches out and grasps most of my dollar before the farmer is able to get his hands upon it.

HERE are some of the facts why I want to get rid of the middleman:

Bread which is sold in New York City returns to the farmer less than 16 per cent of the wheat the consumer pays. Why, even the retailer who has nothing to do but wrap up the package and take in the money gets that much and sometimes the

bread comes to him already wrapped.

Rolled oats treat the farmer a little better according to an official of the Smithsonian Institute who evidently got tired of mounting dinosaurs and started to see what he could do with some agricultural price figures. Less than eighteen per cent of the money which you and I pay for rolled oats finds its way into the jeans of the farmer and of course he has his creditors sitting on the front porch waiting for that eighteen cents to reach him.

And so the story goes. The Southern California orange grower receives less than 40 cents of the consumer's dollar. The cotton grower obtains 15 per cent of the money that my wife spends for gingham. Onion growers usually get about 30 per cent, but I haven't much sympathy with them for I don't like onions and restaurants will get hold of them and slip them into my salad before it reaches me.

MUSING along this line one evening, I sat before an open hearth. Was it the warmth of the fire which stimulated my imagination, for the hearth became a stage and the characters of the play were the farmers, the middlemen and the consumers. The scenes were the farm, the markets and the homes of the consumers.

A law had been passed which had sent all the middlemen to jail and the farmers were joyous. Early the following day, the farmers arose and went into the fields and dug their potatoes and harvested their truck. A song was on the lips of each farmer for with the middlemen gone it was assured that the dollar of the consumer would become the dollar of the farmer for each farmer was to carry his own produce directly to the consumer.

Soon the roads to the city were crowded with the wagons and trucks of the farmers. Polite policemen clad in pocketless uniforms of spotless white directed the orderly moving of the huge procession.

Trucks of the farmers lined the streets of the city and the consumers came and bought. Men in the offices left their desks and went to the streets and purchased the family's supply. Housewives left their dishes and let the floor go unscrubbed while they went to the trucks to get the food which before had been delivered to their doors. Mothers took their children in their arms while they went out and purchased the milk so necessary to the health of their babies.

It was a busy day for the farmer. Toward noon some of the leaves of his lettuce began to wilt and it was necessary to sell a little cheaper than he anticipated. When afternoon came he was tired and as he started home he was a little disappointed with his return, for he had not taken in as much as he had expected and there were still some vegetables which he had not been able to sell.

That evening he was tired and, after he had milked the cows and done the evening chores, he crawled into bed. He awoke the next morning with the sun in his eyes.

There was an early conference that morning with his next door neighbor over the fence beyond the corn patch. It was arranged that the neighbor should carry the produce to the city for the both of them for the tired farmer found that he had to plant his beans and plow the four acre patch and he would not have the time if he were to go again to the city.

The neighbor soon sold his farm for, as he was making regular trips to the city carrying produce for several, the daily trips took his entire time. A clerk in the city who wanted the freedom of the country purchased the farm. Within the city this farmer decided that he could sell better if he bought a small stand where his regular customers would be assured of finding him.

(*turn to page 42*)

The Plagiarism In Philosophy

By E. W. Howe

I HAVE often remarked the plagiarism in philosophy. The philosophy of the ancients is finally so much alike that one man might have written it all. Finally, also, they did not seem to know anything we do not know today. The experiences of mankind are so simple, and so much alike, that there is only one way to tell them.

And now comes a modern philosopher, George Santayana, whose followers pretend that he brings much that is new to the consideration of human problems. But he denies it. In "Scepticism and Animal Faith," which is said to outline his new system, he says:

"My system is not mine, nor new. I have a great respect for orthodoxy; not for those orthodoxies which prevail in particular schools or nations, and which vary from age to age, but for a certain shrewd orthodoxy which the sentiment and practice of laymen maintain everywhere. I think that common sense, in a rough dogged way, is technically sounder than the special schools of philosphy. I am animated by distrust of all high guesses, and by sympathy with the old prejudices and workaday opinions of mankind; they are ill expressed, but they are well grounded."

Here is comfort for every man of common sense. I lately read a book in which the author attempted to summarize the wisdom of all ages. Not only the noted philosophers were included, but the sayings of common people persisting from age to age. All seemed anxious to give warning that will keep others out of trouble. This is a brief summary of it: 1. All insisted on the importance of good conduct; 2. All advocated temperance, fairness, industry and thrift as first helps in making life as endurable as possible: not one recommended theft, drunkenness or idleness; 3. All advocated the adoption of simple, just rules, and observance of them; 4. Without exception all declared man is master of his own destiny, and that, in helping himself, he should respect the plain rights of others.

Here is no philosophy you have not long been familiar with, for the reason that there is no other worthy of the recollection of men.

The swamp on Mr. Robinson's farm which was incorrectly drained.

Get Rid of That SWAMP!

By P. A. Young
County Agent, Gallia County, Ohio

How one farmer put his unproductive land to work.

IT has been said that the most important improvement ever made in agriculture is drainage. There are many, no doubt, who do not agree with the above statement, but the fact remains that proper drainage is a very important factor if farmers would bring their acres up to the maximum of productiveness.

In some sections of our country the land is so swampy that nothing will grow on it but swamp vegetation. To drain this land so that it would grow farm crops would be a herculean task. There are thousands of acres of this water-soaked land in such places as the Great Dismal Swamp and the Everglades of Florida. Farm crops will not grow on this swamp land for the following general reasons: the temperature is too low, and the soil ventilation is inadequate.

But there are thousands of acres of swampy land in our country on which is produced little or nothing. With proper drainage they could

be made very productive. Practically every farm in the country has wet spots that the farmer dodges entirely during wet seasons and on which he produces about one-fourth of a crop when the season happens to be dry.

Farmers in many sections, who have much swamp land to contend with and who farm on a very large scale, have learned the proper system of drainage. In other parts of the country, where farming is done on a small scale and where there is not a great amount of swamp land, the question of drainage has concerned the farmers very little. Hence, when many of them drain a tract of land, they do it in a slipshod fashion and apparently without any thought as to whether the water is going to flow north, south, east or west. Many farmers of Ohio, and especially those in the southern part, have not yet learned the proper system of draining. As a result they have wasted much time and money placing, digging up and replacing tile.

A CASE in point, which came under my observation, was the draining of a six-acre plot on the farm of Anderson Robinson of Gallia County. An attempt had been made to drain this plot by the man who owned the farm before Robinson took possession of it, but without success. This man spent much time and money placing tile only to discover after the job had been completed that the water still remained and his system of drainage was useless. The owner of the plot gave up in despair, declaring that it could not be drained.

For five years Robinson had to plow around about one acre in the middle of this six-acre plot on account of its swampy condition. Not only was the one acre absolutely useless, but the entire six acres was rendered more or less nonproductive. A year ago Robinson had this land in cow-peas, and he lost about half of his seed on account of the extreme wetness.

Discouraged, but determined not to be outdone, Robinson decided to take up the old tile and put in a new system. So one day during last March he came to the County's Agent's office and asked me if he could get someone to survey the plot. I got in touch with Virgil Overholt, extension specialist in Agricultural Engineering at the Ohio State University and asked

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Beginning work on the new system of drainage on the Robinson farm.

Cover Crops *for the* Apple Orchard

By C. E. Baker
Purdue University Agricultural Experiment Station

¶A useful summary of the main factors in growing cover crops

STUDIES of the different systems of soil management in the apple orchard have occupied the time of many horticultural investigators during the past two decades or more. Different methods of soil management have proved especially beneficial under certain sets of conditions. For example, on rolling land or hillsides some form of sod mulch is usually the system of soil management practiced. In some cases a heavy mulch of straw about the trees has been successful in maintaining vigor and productiveness, in other cases yearly applications of a nitrogenous fertilizer are depended upon to maintain satisfactory tree growth and productiveness.

One of the most important and universally practical means of promoting growth and vigor of apple orchards is by cultivation. In some cases the orchards are cultivated continously through the growing period and the ground left bare over winter, but more often

A cover crop of rye is a young orchard. When properly managed, rye makes a very satisfactory cover crop and furnishes large amounts of vegetation for plowing into the soil.

(Courtesy Purdue Experiment Station)

what is known as a cover crop is sown in the orchard during the latter part of the growing season and permitted to occupy the ground between the trees over winter and until cultivation is resumed the following spring. In discussing cover crops, therefore, we are assuming a system of cultivation during the spring and early summer.

When orchard soils are cultivated continuously with no provision being made for returning organic matter, they soon become low in fertility, as continuous cultivation "burns out" the humus in the soil. Consequently, one of the chief duties of a cover crop is to supply humus for the soil by producing vegetative material which may be turned under and incorporated with the soil.

A second function of a cover crop is to increase the moisture—retaining qualities of the soil. Soils low in organic matter are, as a rule, poor in moisture retaining qualities. Darker soils, higher in organic matter, are usually more moisture—retentive than soils low in organic materials. The continuous addition of vegetable matter year after year by the turning under of a cover crop tends to improve the physical condition of the soil and to increase the ability of the soil to retain moisture where it may be used by the trees.

Another important function of a cover crop is the taking up of excess moisture from the soil at the time it is not needed by the trees. Often young trees or vigorously growing bearing trees continue their growth late into the fall; so late sometimes, that they go into the winter in a very immature condition, instead of slowing down in their vegetative growth during the early fall and permitting the growth already made to "ripen" or mature before cold weather. This is especially likely to be the case if a warm rainy fall follows a dry summer. Under such conditions especially, a cover crop is decidely beneficial in assisting the trees to dispose of this excess moisture.

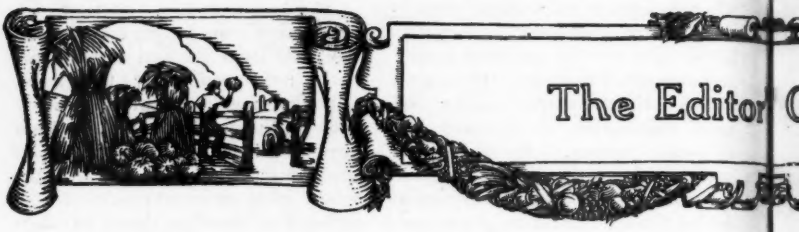
Some cover crops have the additional function of protecting the ground from washing during winter and under some conditions they protect against excessively deep freezing of the soil.

COVER crops may be divided into two main classes—leguminous and non-leguminous. When properly inoculated the leguminous cover crops have the additional advantage of increasing the total nitrogen supply of the orchard soil as well as of increasing the amount

(*turn to page 43*)

Millet used as an orchard cover crop. It grows well between the trees, but will not grow in the shaded areas beneath the trees.

(Courtesy Purdue Experiment Station)



OUR PRESENT CIVILIZATION ONE PROBLEM

On what is our present civilization founded? Professor J. H. Brested, a noted authority, states that the fundamentals have been four:—agriculture, the use of fire, the art of writing, and metals—.

Agriculture is placed first—Why?—One reason is that agriculture includes the use of land. The one purpose of land is to support the life of man; but the number of food producing acres is known. Beyond a certain number they cannot be increased. Opposed to this, the world's population is increasing very rapidly. As this increase takes place arable acres must become more valuable, more specialized in production, more costly to buy and to operate.

The land problem in its simplest terms is therefore to assure two things:—a just return to the man on the land, that he may be induced to produce food,—and the assurance to the mass of the people of an abundance of food at a reasonable price so that the standard of living may be maintained.

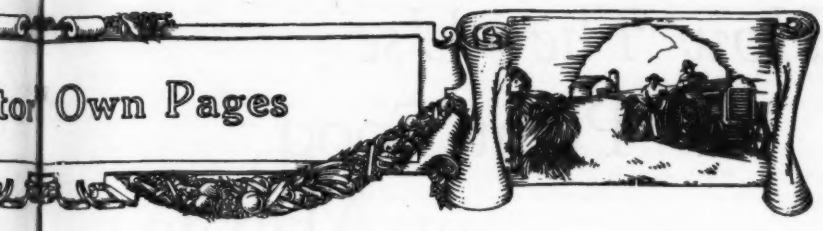
The assurance of these two things is one of the fundamental agricultural problems. Contributions to its solution in appropriations, in work, and in patience are not made to one group only. They are to civilization itself.

A GOOD MAN IN A GOOD JOB

On another page of this issue you will find a picture of Charles J. Brand, the newly appointed executive secretary and treasurer of the New National Fertilizer Association, together with an account of his career.

I was glad to learn of the combination of the two previous associations and gladder still to hear that they had chosen Mr. Brand for such an important position in the new association. There are few men who can equal him in breadth of experience and grasp of the fundamentals of agriculture.

Readers of BETTER CROPS will recall him as the author of a number of articles on the subject of cooperative marketing that have appeared in our pages. Yet this is by no means the only subject on which Mr. Brand can write as an authority.



He knows the scientific and the practical phases of agriculture as well as the economic.

This wide yet thorough knowledge of so many different aspects of agriculture is not so surprising when you know the man. I recall my first meeting with him very vividly because he asked such *intelligent questions.*

Most of the people you meet want to talk to you about themselves and their concerns. They prefer *giving* information to *getting* it. But Charles Brand is one of the exceptions. He tries to learn something new from everyone he meets. He talks about you and your business. That does not mean that he refuses to talk about his own interests. But, unlike many men, he does not put them first.

You can learn something from every person you meet if you ask him the right kind of questions and you can also win his friendship and confidence. Mr. Brand has this happy faculty in addition to many others.

A man's sized job awaits him. We wish him and the new association success!

INTERNATIONAL AGRICULTURE

"Foreign" has in the past been a word suggesting at least remoteness, and — under certain conditions — even hostility, but with the modern annihilation of space and a mutual dependence of peoples it is fast becoming essential to know and understand what is happening in other countries. This applies with special force to agricultural activities in the practical and industrial fields.

For this reason the publications dealing with foreign and international agriculture, published by the Department of Commerce at Washington, are becoming more and more important. This work is essential to our agricultural prosperity and deserves all the support that can be given it.

Jeff McDermid

How They Use Plant Food *in* Alabama

By F. E. Boyd
Alabama Extension Service

There's economy in high analysis fertilizers and high grade materials. Mr. Boyd shows how Alabama farmers have come to appreciate this fact, particularly in regard to potash.

A CAREFUL study of the fertilizer used in Alabama during the three year period from 1923 to 1925 reveals some very interesting facts regarding the kind and amount of plant food elements used by the farmers of the State. This study has made available data showing the amount of phosphoric acid (P_2O_5), ammonia (NH_3) and potash (K_2O) in the total tonnage.

Plant Food Elements	Plant Food in Total Tonnage—Tons			% Increase 1925 Over 1923
	1923	1924	1925	
Phosphoric Acid...	46,188	48,414	55,479	20%
Ammonia.....	11,321	18,188	23,867	110%
Potash.....	9,553	12,462	17,789	86%
Total Tonnage of Fertilizer.....	436,870	472,240	577,000	....

Allowing some phosphoric acid and ammonia as such for legumes, corn and oats the plant food materials in the 1925 tonnage are approximately in the proportion recommended by the Alabama Experiment Station for cotton, which received 80 per cent of the total fertilizer consumed.

Studying the available data further shows the proportion of phosphoric acid, ammonia and potash per 100 pounds of average fertilizer.

Year	Pounds of Plant Food Per Hundred			Total Pounds Plant Food Per Hundred
	Phos. Acid	Ammonia	Potash	
1923.....	10.6	2.6	2.2	15.4
1924.....	10.3	3.8	2.6	16.7
1925.....	9.6	4.1	3.1	16.8

These data show that the ammonia and potash plant food has practically doubled since 1923.

The above data shows that

farmers are gradually decreasing the phosphoric acid content and increasing the proportion of ammonia and potash in the fertilizers they use. The total tonnage used each year is divided approximately 50–50 between separate ingredients and factory-mixed fertilizers. Practically all of the potash in the separate ingredient tonnage is derived from kainit, manure salts and muriate of potash. The total amount in the separate ingredient tonnage from each source is shown herewith.

Source and Per Cent Plant Food	Year and Tonnage		
	1923	1924	1925
Kainit, 12%.	16,879	14,749	15,433
Manure Salts, 20%.....	333	436	854
Muriate of Potash, 48%.....	2,641	5,341	9,661

In connection with this study it is interesting to note a tendency to decrease the tonnage of the lower grades and increase the amount of the higher grades of potash consumed each year.

The Alabama Farm Bureau Federation is the largest single user of separate ingredient fertilizer in the State, and data taken from their official records show the same tendency towards high analysis sources of potash. The data is presented below.

Source	Year and Tonnage		
	1923	1924	1925
Kainit.....	5,651	3,608	2,765
Muriate of Potash....	789	2,844	4,140

That the Farm Bureau is very much interested in delivering to its membership a high quality source of potash at the lowest cost per unit of plant food, accounts for the fact that it handles muriate of potash very largely. The chief reason why they handle any kainit is that there are a good many farmers who believe that kainit has certain qualitites absolutely essential to normal plant growth not contained in any other form of potash. From a practical standpoint this belief has been disproven as far as general field crops are concerned.

The general recommendation from most Experiment Stations is to use that source which can be delivered on the farm at the lowest cost per unit of plant food. On this basis, muriate of potash, which contains about four times as much plant food as kainit, can be delivered to the farm much cheaper than kainit or other low grade sources, due in a large measure to the saving in transportation and handling charges.

The Farmer

IT is no Fun to be a Farmer
Who, when to woo his Feline Charmer
The Early Morning Cat me-ows,
Must brave the Dark to milk the Cows.
While Sparrows chirp their Obbligatos
He gathers Beans and props Tomatoes.
About the Time the Sun is up
He gets his Breakfast Coffee Cup.
He spends his Leisure Plowing, Sowing,
Manuring, Pulling Turnips, Mowing,
And Praying, as he views his Grain,
For Lots of Sun or Lots of Rain.
When Anxious Farmers get together
They Wish for Varied Kinds of Weather;
And when the Weather comes along,
No Matter what it is, it's Wrong.
Good Cause the Farmer has to grumble!
If Crops *are* good, the Prices tumble.
He never even thinks he's through;
There's always Something Else to do.
And when for Rest he's Fairly Craving,
They Stretch his Day with Daylight Saving!

—Arthur Guiterman, in "Life."

$20 Prize Question

THIS month we are publishing on page 4 the prize-winning answer to the first of our prize questions which was asked in our May issue. The answers to the second question, "Should farmers organize to improve their economic condition?" will be printed next month. Here is the next question for you to answer:

What Can We Do to Get Lower and More Equitable Taxes?

This is the third of five questions which will be asked monthly in our pages. The best answer will receive a prize of $20.00. There are no restrictions except on length. Answer it any way you like. We want a clear and convincing presentation of why you believe as you do on this subject. Just make your argument brief and to the point.

Answers to this question must not exceed 800 words. They must be mailed before midnight August 6th. The winning answer will be published in our September issue. The judges will be Jeff McDermid and Basil H. Pillard, editors of BETTER CROPS. In the event of a tie, the full amount of the prize will be awarded to both contestants. The judges reserve the right to withhold the award in the event that none of the answers is deemed worthy of publication in BETTER CROPS. BETTER CROPS reserves the right to publish any manuscript submitted in this contest at the regular rate of one cent a word. No manuscripts will be returned.

Send your answer before August 6th to:

JEFF McDERMID
Better Crops Publishing Corp.
461 EIGHTH AVENUE NEW YORK CITY

Making Information Available

Dear Jeff:—

I thoroughly enjoy your paper and especially your editorials. With reference to stenographic work in County Agent's office I fully agree with your comments on page 25. In this respect, however, the efficiency of the office will depend in large measure upon the executive ability of the County Agent. As years add to his experience he should accumulate a vast fund of information, some of which he will always have at his command, but a great portion of which will be hidden away in files.

To my mind it is unfortunate that the vast fund of information compiled by the U. S. D. A. and published in Farmer's Bulletins, Department Bulletins and Year Books, is hidden away in such manner as to make it almost impossible to find anything. The brief lists that have been published are not one per cent efficient in helping to find information contained in the Bulletins. The Experiment Station index is entirely too complicated for a County Agent's office.

I am contemplating at the present time compiling an index of the subject matter of these Bulletins and hope to confine it to about 6,000 cards with from three to ten cross indices on each card. If I do work this out I may be able to get it up in such a way that duplicate lists can be prepared if there is sufficient demand for them. What do you think about it?

Very truly yours,

CHARLES H. ALVORD,
County Agent,
San Antonio, Texas.

Mr. Alvord has hit upon a very sound idea. There is unquestionably a need for such an index as he describes. I would like to see it put through and I suggest that if you are interested you write Mr. Alvord. If this work could be done once and for all, it would save a lot of duplication and bother.—Jeff.

A Correction

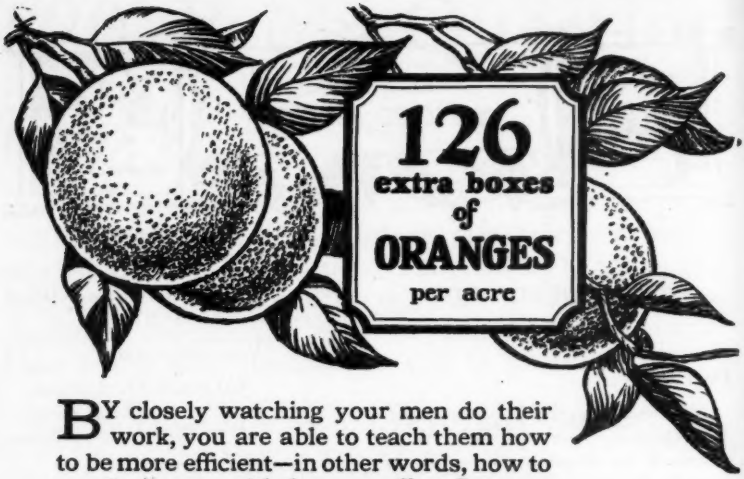
Dear Jeff:

In reading my article in June BETTER CROPS I find a mistake due to the omission of a line in the original copy. Hatch and Otis belong in Wisconsin instead of Illinois and Handschin of Illinois and Doane of Missouri should have been included. I should also have included Warren, Livermore and Scoville of New York. These pioneers always participated in an energetic and constructive manner in our conferences, and many of our methods developed from the seed which they sowed.

I want to commend your articles on failure and fear in the last two issues.

Very truly yours,

D. W. FREAR,
Ext. Assoc. Prof. of Field Crops
Missouri College of Agriculture.



BY closely watching your men do their work, you are able to teach them how to be more efficient—in other words, how to *produce more* with the same effort. In many ways, your orange trees are the same. . . .

By proper supervision and treatment, you can make your trees produce *more fruit*, and thus, *make more profit for yourself.* The fertilizer you use exerts a strong influence. W. E. Sprotts, of Tulare County, California, picked—*126 extra boxes of Navel Oranges per acre when he used a fertilizer which contained potash.* [The potash used cost Mr. Sprotts only $5.00 extra.]

Besides influencing the weight, sweetness and flavor of the fruit, potash also helps to sustain vigor in the tree. When potash is not available in the needed quantity, there is an excess of immature wood and the tree's resistance to cold is low.

Keep these facts in mind when you order fertilizer this season. Potash pays!

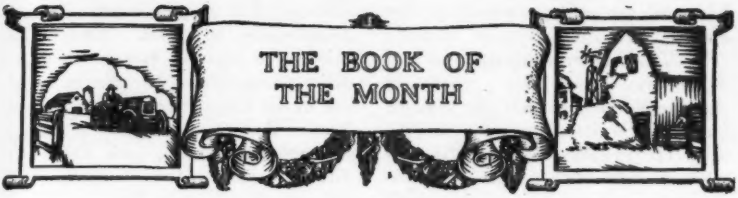
FREE A booklet called "Potash Pays!" is being mailed free to orange growers. The data it contains will help you increase your income this year. Write for your copy now.

POTASH IMPORTING CORPORATION OF AMERICA
10 BRIDGE ST., Dept. BC, NEW YORK
Baltimore Atlanta San Francisco

Genuine German

POTASH

Sales Agents: H. J. Baker & Bro., 81 Fulton St., N. Y.



The Farmer's Psychology

"Our Rural Heritage," by James Mickel Williams. Published by Alfred Knopf, New York, 1924. Price $4.00.

"Our Rural Heritage," by James Mickel Williams is a non-statistical study of a much neglected rural problem: the social psychology of rural development.

Dr. Williams proceeds by clear, simple narration to analyze a typical New York rural community of the period dating from the American Revolution to the agricultural depression of the seventies. He assumes, and rightly so, that the characteristics of this community were common to most other rural sections of the United States. The author brings to this study a wealth of experience with rural communities, and intimate contact with the Blanktown community and an acumen for uncovering interesting and pertinent historical data. This work, together with its companion volume might well be called a social history of a typical American rural community of the 19th century.

The entire field of rural development in the United States is divided into three periods. The first period begins with the rapid extension of our frontiers after the Revolutionary war and extends to 1874. During this period great emphasis was placed on adherence to customs. Conformity to the demands of the group was paramount. Agriculture in the beginning of this period was almost wholly self sufficing. Transportation was difficult. Labor was hard and exacting. Life was a battle. The group of people who pushed their way across the mountains and founded new homes were hardy, independent pioneers. Those who were less adventurous remained at home and maintained old customs. Expansion was rapid, however, and by the end of the period agriculture had changed from a self sufficing type to a commercial type. Many railroads had been built and great railroad systems were being projected to bring the West to the East. Industrial centres supplying factory-made goods to the farm folk grew rapidly and thus increased the demand for farm products.

The second period extended from 1874 to 1900. It is marked particularly by radical departure from custom, rural depopulation, low prices and increasing competition.

The third period dates from 1900 to the present time. Its chief characteristic seems to be organization especially for promotion of scientific agriculture.

"Our Rural Heritage" deals with only the first period. The second and third periods are treated in another book, "The Expansion of Rural Life," which is ready for publication, and which gives promise of adding much to our scant literature on rural social psychology.

After four general introductory chapters dealing with rural development, rural social psychology methods and social and physical environment, the behavior and attitude of rural folk are discussed in an effort to determine first, what they are and second, wherein they differ from those of city people.

The differences, according to the author, are due to four factors: (1) The farmer's exposure to and dependence on the uncertain weather conditions and the seasons for the fruition of his crops. (2) His isolation. (3) His constant contact with nature and consequently fewer contacts with people. (4) The hard and confining nature of his occupation.

While these factors are not the only determinants of rural behavior, they are the dominant ones. The stern demands on a farmer gave a fixity, a finality, to his customs and ways of looking at things that were not common to people uninfluenced by rural conditions.

"Our Rural Heritage" is not a chronicle of historical events. The attitudes discussed in the twenty-five chapters constitute the psychological basis of our rural civilization. Because of the predominance of rural over urban attitudes in our national development they, likewise, constitute a considerable part of our national life. In the early days the manufacturer, the storekeeper, the lawyer and the doctor were either part-time farmers or were so closely associated with farm life that they reflected similar attitudes toward rural life. Like the farmers, they were men of action.

The author's account of the relation between husband and wife, and between parents and children vividly portrays that period in our history when the male considered himself, and was so accepted by the women and children, the most significant animal in family life. Woman had not yet reached her majority. "Husband and wife are one and that one the husband" was the formula in legal proceedings. Woman was not expected to speak in meetings. For justification, St. Paul's injunction was applied. Modernism in church and state had not yet lifted up its head. Though there was not an opportunity for the economic independence of woman, she was economically indispensable to man. While she may have been suppressed, a condition common to her sex in rural life in all lands, her lot was not so hard. By psychological methods she managed man, and thus indirectly she often became the interpreter of family life.

As might be anticipated, the economic factors and their effect on the mental attitudes of the people occupy a prominent place in the book. In the chapter on economic interpretations, especially, one is impressed with the fact that the present attitude of the farmer toward certain fundamental problems is about the same as it was fifty years ago. For instance, "the farmer's attention has centered not on education but on taxes."

While the author has a special community in New York state in mind, the facts related are of such general application that one is not conscious of the fact that it is not his own community of fifty or one hundred years ago which is being discussed.

All in all—"Our Rural Heritage" is an interesting and instructive study. It impresses one as the personal narrative of a man who has actually witnessed and participated in the activities described. To write thus, it is necessary for the author to be very familiar with the literature descriptive of the period and likewise to have an imagination enabling him to visualize the time of which he writes.

We must not expect to find in this work, however, the final word in rural psychology. As Mr. Williams indicates, this book together with its companion volume, "The Expansion of Rural Life," constitute a survey of the field which may lead in the future to much needed studies in social psychology.

R. G. BRESSLER,

Prof. Rural Sociology,
Pennsylvania Experiment Station.

Fulghum Oats Return Extra Profits

(*From page 7*)

variety. This extra money is net too, because it costs no more to raise a good variety of any crop than a poor one.

This sudden turning to a new variety of oats did not come about by some curious individual sending "away out west" for some seed or by bringing back a pocket-full of seed from the Canadian exhibit at the International Hay and Grain Show. Much to the contrary it was the result of a well defined campaign put forward by the Farm Bureau to standardize on one particular variety of oats. The plan of the campaign was nothing out of the ordinary and would never have succeeded if the variety had not given a good account of itself in every case.

THERE is the way it happened. Early in the spring of 1922 the Crops Department of Ohio State University announced that they had for sale a small quantity of Fulghum oats for seed. This fact was brought to the attention of a few of our more progressive farmers and two men secured the seed and planted it. The records on these two crops and the records of the Experiment Station induced us to adopt the sowing of Fulghum oats as one of our major extension projects in the Spring of 1923.

In carrying on this project an attempt was made to get five men in each of our ten townships to try this variety. We succeeded in getting thirty men to do so. A careful check was made on the yields of all these crops and it was found that the average yield was 40.5 bushels per acre. This was not a high yield, but it was approximately 12 bushels per acre above the average of other varieties. On the 300 acres that were grown this meant an increase in production of approximately 3,600 bushels of oats worth about $1,800.

In other words, the thirty men who tried the new variety of oats netted about $60.00 each on the average by doing so. In fact, practically all of them did better than this due to the fact that they were able to sell their entire crop for seed at about twice the market price.

After the encouraging experience with Fulghum oats in 1923 many more men were anxious to try them in 1924. By checking up the seed sold it was found that 120 men sowed approximately 3,000 acres of Fulghum in the spring of 1924. This was a much better oats season. The records were again carefully checked and it was found that the average yield for the 3,000 acres was 55.2 bushels per acre which was again about 12 bushels per acre above the yield of other common varieties. This increase of 12 bushels per acre on the 3,000 acres amounted to a total increase in production of 36,000 bushels of oats for the county. At 50c per bushel this meant an increased income of $18,000 or an average of $150 per man. The value of this variety is not in the increased yield alone but also in the quality. The average weight per bushel was 33.5 pounds. One man who fertilized with 200 pounds of 10–10 fertilizer per acre *produced 70 bushels per acre* of oats that weighed 36 pounds per bushel.

IN the spring of 1925 the demand for Fulghum seed exceeded the supply. As the corn for 1924 was short many men resorted to oats for feed. Consequently the entire crop of 36,000 bushels was not available for seed this spring. However, after making a careful survey we found that approximately 15,000 bushels were used for seed.

This amount, at the usual rate of seeding, will plant 7,500 acres which is 50 per cent of the oats acreage of the county. With the same margin of production of this variety over other varieties that has held good in the past three seasons the above acreage will yield 90,000 bushels more oats than would be produced with the other common varieties that were formerly grown in the county.

With these facts before them it is not a difficult matter for farmers of this county to decide what variety of oats to plant.

Quality Crops Pay

By H. E. *Young*

Illinois Farmers' Institute

THERE are four principal ways to increase crop profits on the farm, viz., by reducing production costs, by increasing yields per acre, by improvement of quality so that the crop brings a higher price, and by developing better markets and marketing methods. The first three are largely problems for the individual farmer, while the fourth also involves economic conditions, organization and cooperation over which the individual may have no control. Everybody agrees that reducing production costs and increasing yields per acre will tend to enhance net profits, but the improvement of crop quality is not so generally accepted as a profit factor on the farm. Nor are the advantages to be gained therefrom so readily recognized by the average farmer. Just how much quality crops pay is not always so easily figured, and yet no one can successfully deny the fact, that as a general rule, quality crops will bring increased profits in direct proportion as the degree of quality exceeds the ordinary.

Perhaps one of the best and most striking examples of how crop quality may pay is found in the production of corn on muck, or peaty soil, where an application of potash fertilizer often makes all the difference between a sound, marketable corn crop and soft, chaffy nubbins not worth harvesting. Such a difference is very common on this type of soil, and it often shows to the very row where the potash application has been applied.

The value of sound corn, or soft nubbins is obvious. As a market proposition it may be computed in dollars and cents according to the ruling price of the crop, and from the standpoint of crop profit it means a substantial gain over cost of production, or an almost complete loss of seed and labor involved.

On an Indiana farm, corn on untreated muck soil made 32 bushels per acre, mostly nubbins, soft and very chaffy. In the same field where sulfate of potash was applied at the rate of 200 pounds per acre, the yield was increased to 52 bushels per acre, 48 bushels of which graded as marketable corn and was sold as such. The increase in quality of the crop paid for the fertilizer several times over, say nothing about the 20 bushels increase in yield. Quality paid big dividends here, and will invariably pay with any crop on any farm.

Actual farm experience in Indiana, Illinois, Wisconsin and other States records many instances where corn quality has been raised from practically worthless crops to as high as 50 and 60 bushels of first

class, marketable corn. Quality crops on muck soils are profitable, where ordinary or average crops on untreated fields are unprofitable and many times a total loss.

We speak of corn as it is the leading crop of this section, but the application of crop quality applies equally well to wheat, potatoes, garden truck, and in fact all other crops on the farm. Quality counts in every farm crop and very frequently represents the difference between a substantial profit and an actual loss of the entire crop.

Successful fruit growers are generally as much interested in getting quality fruit as in producing high yields. A small crop of extra fine quality fruit often sells for more money than a large crop of two or three times as many bushels, but of a poorer quality. The net profit in such a case is in favor of the quality crop every time.

A quality peach crop of six hundred bushels, two years ago, brought a Southern Illinois grower more money than the combined crops of several neighbors totaling over nine hundred bushels sold for on the same market. The sole difference was that of crop quality and quality alone.

Quality is an essential factor in all fruit production and no class of farmers realize more keenly just what quality crops mean from a profit yielding standpoint on the farm. There is always a demand for quality fruit and, while the market price may vary greatly from year to year, depending upon the marketable supply, the quality product invariably finds a buyer whereas a mediocre crop must be disposed of at a very much lower figure, not infrequently below the actual cost of production, or perhaps is left in the orchard to rot and becomes a total loss to the grower. This happens on thousands of farms every year and in the great majority of cases the principal reason is that of quality.

Quality is in standard demand on all markets, in all retail establishments, and in every place where food products are handled. Quality is sought by market men and consumers alike. Because of this universal demand for quality higher prices are paid for such products, and it is these higher prices which make the production of quality crops return greater profits to the farmer. Experiments and experiences in field, orchard and garden have universally proven the value of quality crops in real dollars and cents. Production of quality crops will invariably enhance farm profits, and that is a proposition in which every farmer is interested. High quality crops will pay a profit where average quality crops frequently show an actual loss on the farm ledger.

The Tie that Destroys

(*From page 13*)

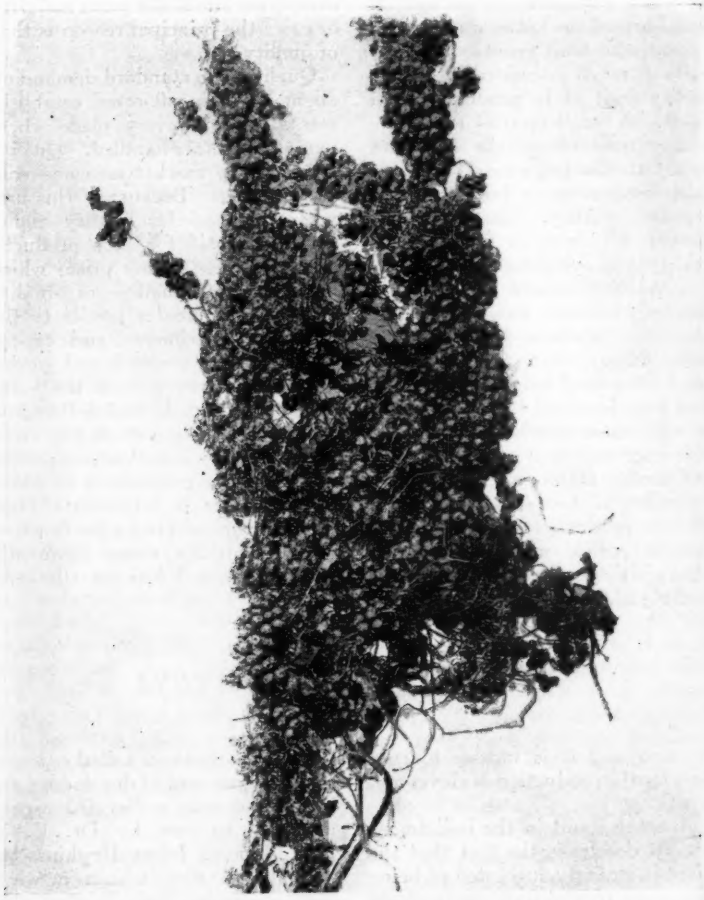
rotation and it is unwise to ruin land for the production of clover and alfalfa.

Another count in the indictment against dodder is the fact that the plant is strongly suspected of being poisonous to livestock, particularly horses. We have had some complaints along this line in Indiana and the idea seems reasonable enough since dodder is known to contain a poisonous substance called *cuscutin*. When 15 per cent of dry dodder was introduced into a diet fed experimentally to rats by Dr. E. V. McCollum of Johns Hopkins, the animals all died within a week. The conclusion was reached that the death of the rats was due to the toxic properties of the dodder.

Possibly you do not recognize the plant by the common name *dodder*.

In some parts of the country it is known as *tie-vine* because it ties plants into bunches, while in other sections it masquerades under the amorous appellation *love-vine*, possibly in allusion to the fact that the plants to which it clings are eventually choked to death.

Perhaps, after all, the dodder danger has been much exaggerated. We are quite certain, for instance, that dodder is not nearly as serious a problem in America as it is in Europe, where the ravages of the pest have practically ruined large seed-production areas. Nevertheless, we believe it will pay to run no chances by avoiding dodder-infested seed as much as possible and by cutting and burning the yellowish patches as soon as they appear on the farm.



A clover plant that has been completely destroyed by dodder. Note that the parasite has gone to seed.

Building a "For Service" Organization

(*From page* 5)

rural districts boosted, but a means was provided for bringing every farmer in every community into direct contact with the Farm Bureau. Leaders in the organization lost no opportunities to tell the people what the Farm Bureau was and what it could do if supported as it should be.

Late in 1924 a big drive was made for new members, and by 1925 the officers, chairmen of the various units, and other energetic fellows had increased the membership to over 300.

A paid Secretary was then secured, whose first job was to collect the dues from the members. Then an office was secured and equipped and a "For Service" organization was ready to serve its members. It has not yet been established a half year, yet many of the members have received many times the value of the fee they paid for a year's service from the Farm Bureau.

THE first service was to establish a member's exchange through which members could list any article they wished to exchange. These articles are listed on a bulletin board in front of the office building, and one of the local editors is kind enough to publish them in his paper free of charge. Hundreds of exchange items have been handled successfully, and the practice of advertising through the office is becoming more popular all the time.

In connection with the exchange service an employment agency is provided for the free use of Farm Bureau Members. Men who wish to work list their names in the office and farmers who want men are not slow about calling for them. It is proving to be a big success and will keep a man busy all the time during harvest.

Another more cooperative undertaking has been that of pooling orders for posts, sacks, hog wire, and sugar, and buying in car load lots. This was so successful that orders were taken for four car loads of posts in one month and other supplies in proportion.

CONNECTION has been established with the State College Extension Service which has shown the farmers every courtesy possible. From it and the Department of Agriculture a bulletin supply has been accumulated in the office for the members and any information they cannot secure from these, the secretary gets by writing to the Extension Service. Farmers ask advice about seed; the kind, time to plant and method; they ask questions about poultry, poultry houses and poultry-raising equipment; they ask about the dairy, milk testing, cream testing and T. B. testing of milk cows; they ask —well what don't they ask that should be of interest to them? Organization makes it possible for them to get the right answers easily.

The Extension Service has furnished experienced and capable speakers for the farmers. Four were furnished in one month, one speaking on corn raising, one on Club work, one on potato seed treating, and one on farm soils and the destructiveness of the present summer fallow method employed here. All of these men know their business and are experts in their line which led farmers present at their meetings to declare their instruction is worth real money to them. The community which does not use its College Extension Service, if it has one, certainly loses a lot of free information which it can just as well have as not.

This organization has conducted a squirrel and rat poisoning campaign furnishing poison to members at cost. It has made it possible to have herds of cows tested for T. B. It has furnished service for buying best guaranteed seed for farmers at lower prices than the individual buyer paid for poorer seed. It is now promoting a plan for forming an egg association and this fall it is going to have charge of the biggest, most educative and entertaining fair the County has ever seen.

But measured in dollars and cents the crowning service the Farm Bureau has rendered is that of cooperative marketing of live stock. The only work the farmer has to do is to bring his stock to the loading yards on the shipping day and deposit his check when it arrives—the Secretary does the rest. The advantage of this method of marketing is that live stock can be sent to the larger markets which pay better prices than small local ones, and at the same time it enables the farmer to cull out undesirable stock and sell it in the larger markets, while the small local market could not handle it at all. In cooperative marketing seems to be the greatest opportunity for service in this community, but opportunities for the organization to serve its members seem to be unlimited.

Brand Goes to New N. F. A.

(*From page 14*)

At the time of the war he served as a chairman of the committee on Cotton Distribution of the War Industries Board. He was also a member of the Wool Advisory Committee and liquidating officer to collect and distribute excess profits under the regulations.

In 1919 he left the Department to become Vice-President and General Manager, American Fruit Growers Incorporated, Pittsburgh, Pa., which conducts extensive production operations in many states and maintains a national sales service, handling over 30,000 carloads of perishables yearly.

In 1922 at the invitation of Secretary Wallace he took the position he is now leaving. During part of 1923 he was Agricultural Commissioner to Europe, investigating economic, commercial and financial conditions in agriculture and was a delegate to the International Congress of Chambers of Commerce in Rome, representing the Pittsburgh Chamber of Commerce and the U. S. Department of Agriculture. He prepared the first draft of the Agricultural Export bill at the request of Secretary Wallace.

In addition to these activities Mr. Brand has developed a large commercial orchard in Western Maryland. He is a member of the American Economic Association, the Washington Academy of Science, the honorary scientific research society, Sigma Xi and numberous other organizations.

Mr. Brand will assume his new duties as soon after July 1st, as possible. The New National Fertilizer Association is a combination of the two previously existing associations—the Southern and the National. Executive headquarters will be located at Washington, D. C., and branch offices will be maintained at Chicago, Atlanta and Shreveport.

Under the direction of the President of the Executive Committee, Mr. Brand will supervise such activities of the Association as soil improvement work, cost accounting, traffic activities, improved trade practices, standardization and public relations.

Selling an Agricultural Idea

(*From page 11*)

Cooperative Extension Work in Agriculture and Home Economics

State of Nebraska

THE
UNIVERSITY OF NEBR.
AGRICULTURAL COLLEGE
U. S. DEPT. OF AGRICULTURE
RICHARDSON COUNTY FARM BUREAU
COOPERATING

Office of the
RICHARDSON COUNTY
EXTENSION AGENT
COURT HOUSE
FALLS CITY

Dear Sir:

Do you believe that our soils will ever wear out?

I was over in the other end of the county today and happened to hear some fellows talking about land. "No, sir!" said one of them, "hold your land, because it is the best in the whole United States. It needs no lime, needs no commercial fertilizer, and in fact we could dig out our soil down 20 or 30 feet and use it for fertilizer for some of those eastern farms. Our soil is so rich and deep it will never wear out."

Steering the "Lizzie" homeward, I got to thinking over what I had heard. Do we have a soil problem? As I drove by the different farms and noticed the difference in the growth of cornstalks on adjoining fields of different farms I wondered what made the difference of from 10 to 30 bushels in yield.

The other day I ran across an 80 acre farm in the hills. It looked different from the farms around it. Crops were heavy and the soil black, and there wasn't a ditch on it. At the top of this letter is a picture of a part of that farm. The field on the left belongs to one farm and the field on the right to another. Thirteen years ago two farms were of equal fertility, but today one acre of one farm will yield as much as three of the other. I wanted to know why.

"Why should I plow, plant, cultivate, and rush to get over the corn on 50 acres when I can raise just as much on 25 with about one-half the labor and besides have that other 25 acres in clover or alfalfa?" asked the fellow on the good farm.

I had to admit I didn't know why he should and I haven't found anyone yet who does know. But still I find that some farmers do that very thing.

Yours very truly,

JOE BROWN,

County Extension Agent.

P. S.—I have been looking into crop rotations, soil washing, soil management, and yields and I am going to write you some more about it next week.

Letter number four closed the subject and enclosed the card. It made the final attempt to sell the idea.

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

State of Nebraska

THE
UNIVERSITY OF NEBR.
AGRICULTURAL COLLEGE
U. S. DEPT. OF AGRICULTURE
RICHARDSON COUNTY FARM BUREAU
COOPERATING

Office of the
RICHARDSON COUNTY
EXTENSION AGENT
COURT HOUSE
FALLS CITY

Dear Sir:

If you were going to increase the yield of crops on your farm what would be the most likely method of doing it? Forty representative Nebraska farmers to whom this question was put replied, "Grow legumes such as the clovers and alfalfa." These men who have been growing sweet clover for from 5 to 10 years estimate that 2 years of it will increase the yield of corn 64 per cent, of oats 56 per cent, and of winter

wheat 50 per cent. In other words if corn makes 25 bushels, oats 30 bushels, and wheat 20 bushels, 2 years of sweet clover will boost these to 41, 47 and 30 bushels, respectively.

Why do legumes affect the yield in this way? First, they build up the soil in nitrogen and organic matter—the things that are first exhausted in Nebraska soils. Second, they improve the tilth of the soil so that it becomes loose and friable, and in a condition to absorb rainfall rapidly. Third, they decrease weed growth which allows more of the soil moisture to be available for crops since the elimination of weeds is one of the biggest factors in moisture conservation. Fourth, they promote diversification and the keeping of livestock. Fifth, as a hay or pasture, they furnish a cheap protein feed necessary for the economical production of all kinds of livestock. All of these add to the farm income.

I am expecting to devote considerable time during the next year to these matters. You will find enclosed a card, which requires no postage, on which I would be glad to have you mark the things in which you are interested.

Very truly yours,

JOE BROWN,

Encl. 1 *County Extension Agent.*

I am interested in the proposition you have been discussing in your series of letters and I would like to have you call at my farm soon to talk over:—

(*Mark the one that you are interested in.*)

Crop Rotation Plans..... Seeding Methods for Legumes.....

Brush Dams..... Terracing..... Soil..... Saving Dams.....

I would like to have you send me a bulletin on:

Sweet Clover..... Alfalfa..... Soil Washing.....

Signed..... *Address*.....

Section..... *Township*..... *Range*.....

U. S. D. A., U. of N. Agr. College-County Farm Bureau Cooperating. SOILS.

This letter campaign supplemented with farm paper and local paper articles, meetings and demonstrations has worked satisfactorily in Nebraska the past two seasons. Other states may want to try it out.

Middlemen and Millenniums

(*From page 18*)

Several days the farmers were disappointed with the returns which their produce brought them. They wanted to know how much their truck was going to bring them before it was taken from their farms. So the one who was doing the hauling arranged to pay them for it and he took the risk of not selling it and of having it decay.

This ideal situation extended for some time. But one day a fearful rumor arose among the farmers. It was whispered that a middleman was again in their midst. What! Had the jails been insecure? Had some of those fiends broken from their confinement? A committee was appointed from their number to make a thorough investigation and to take steps, however drastic, to eliminate the middlemen.

The committee found that they had been betrayed by one of their own kind. The farmer who took over the hauling and who installed himself in the city had become a middleman. Farmers over the entire country had been fooled in the same way by these sheep in wolves clothing. Great indignation reigned and the middlemen were tried, found guilty and hustled off to jail to join those who had gone before them.

Another great harvest day came. Favorable rains and warm weather had combined to produce a bumper crop and each farmer gathered his produce to carry to the city.

Once again the wagons and trucks of the farmers lined the roads to the city but as the procession approaced the city, it was noted that the streets were deserted; street cars were deserted upon the tracks and no policemen met them as upon that first great day of direct marketing.

The wagons and trucks were soon arranged in their former places. The farmers cried their wares but there were no consumers. A few of the more venturesome farmers made their way into the offices and homes but it was found that they too were deserted. No consumers existed in the city.

A committee of farmers gathered to ponder on the situation. Where were the consumers? Why was the city deserted?

The Warden of the jail happened by in his limousine driven by a middleman prisoner. He was hailed by the farmers and asked for an explanation.

"It is simple," he replied, "My jails are so extensive that they make up a city. The farmers gradually became middlemen. The middlemen were sent to jail. The city people went to the farms. Who can be consumers with such an arrangement?" His car glided silently on its way.

What was to be done? Congress was appealed to and in order to provide consumers, an emergency bill was rushed through and all the middlemen prisoners were released and consumers were accordingly provided.

With all the middlemen out of jail, it was no time at all before the old order of things reigned The farmer grew his produce and marketed it in the same old way. He now was contented and the consumer realized that there was more to supplying food than just raising it upon the farm and selling it.

Note:—I do not want to leave with our readers the impression that this is the last word on the subject. Mr. Flournoy has shown in his entertaining fable that middlemen do perform some necessary functions. The more vital question of whether they should be permitted to have control over prices paid to farmers and by consumers is not touched.—Jeff.

Get Rid of That Swamp!

(*From page 21*)

him to come down and survey the plot, which he did.

THE work in taking up the old tile had not progressed far when the reasons for their failure to drain was discovered. In the first place, the tile had been laid too shallow, only four to six feet from the surface. The outlet of the tile should have been lowered at least four feet, which would have insured more fall and provided for the laying of the tile at a greater depth. This not only would have lessened the danger of the tile being broken, but would have allowed them to draw water from a greater distance.

The water frequently backs up from the Ohio river and covers this plot of land, leaving a deposit of fine mud in the tile. As the old tile was laid with only one inch fall to the 100 feet, the water did not have enough force to wash out the sediment.

Not only was there no system whatever in laying the original tile, but there was not enough tile. There was 225 feet of the old tile, while 775 feet was used in completing the new job. The new tile was laid much deeper than the old, and was given a fall of 12 inches to the 100 feet. This has removed all danger of the tile clogging, as the water flows with enough force to keep them clear of mud at all times.

The cost of completing this job was tile, $25, and labor, $70, making a total of $95. So it will be seen that the cost of draining this plot was a very small matter, especially in view of the fact that the $95 was practically repaid from the crop of soy-beans raised on this land last year. Robinson will put this land to corn next year.

Too many tile have been laid without system and have failed to function properly. This has discouraged many farmers to the extent of neglecting this important improvement. But farmers everywhere are beginning to familiarize themselves with the drainage question through demonstration, and the time is not far distant when frog-ponds in the middle of fertile fields will be a thing of the past.

Cover Crops for the Apple Orchard

(*From page 23*)

of organic matter. Both classes may be subdivided into those which die in the fall and those which live over winter.

In order to see what factors go to make up a satisfactory cover crop let us notice what takes place when the cover crop is plowed under in the spring. A crop that does not over-winter may be plowed under at any time that the ground is suitable. Crops that live over winter may be permitted to make some additional growth before they are returned to the soil. However, this must not be permitted to continue too long or the advantage of additional growth may be lost.

When the vegetative material is plowed into the soil it begins to decompose and is worked upon by bacteria which convert this material into a form in which it may be taken up by the tree. These are the various classes of nitrifying bacteria which convert the vegetative matter into ammonia and nitrites and finally into nitrates, in which form it may be taken up by the tree. These bacteria work only at rela-

tively warm temperatures and under moist conditions.

IN order, therefore, that the decomposition process may take place as rapidly as possible it is better that the vegetation should be young and succulent. Some crops, such as rye, tend to become tough and woody as they near maturity and decay very slowly. As the season advances the moisture supply in the soil often diminishes, tending to delay the destruction of the crop turned under late. An additional factor in favor of plowing under the crop relatively early in the spring is the possible need by the trees for the moisture being used by the cover crop, especially in the case of a dry spring.

Cover crop investigations conducted by the Purdue Experiment Station since 1912 have been summarized as follows: "The most satisfactory orchard cover crop is that one which, in the locality under consideration, will produce the greatest growth of vegetation, relatively rich in nitrogen."

Some of the most satisfactory cover crops that have a wide adaptation may be listed as follows:—

NON-LEGUMINOUS

Rye.—This crop has proved very satisfactory under Indiana conditions when properly managed. It is adapted to almost any type of soil and seldom fails to produce a good stand. It produces a good cover that remains on the ground over winter and yields a large amount of organic material for returning to the soil. It should be plowed under while young and succulent for best results.

Millet.—Another good crop especially for the young orchard. It grows rapidly and in this latitude makes a good growth before it is killed by the frost. Millet is not so well suited to the old orchard as it does not grow well in shade. Although it does not live over winter it usually forms a mat of dry stems over the surface of the ground.

Oats.—In cool moist climates oats often make a very desirable cover crop.

Buckwheat.—This crop is very similar to millet in its behavior and adaptability as an orchard cover crop. It does not form as large an amount of dry matter, however, nor does it afford so good a winter cover.

LEGUMINOUS

Soybeans and Cowpeas.—In warm regions these crops sometimes make very satisfactory cover crops. In the more northernly localities, however, they often fail to produce a satisfactory ground cover before frost, when planted at the time cover crops are generally sown.

Red Clover.—A poor stand of red clover usually results from late sowing. Liming is often necessary to secure a good stand of red clover on orchard soils. Where these difficulties can be overcome red clover makes a very desirable cover crop.

Crimson Clover.—Like red clover, this is a very desirable cover crop when a good stand is secured. Much winter killing has been reported on clay soils, but on lighter soils crimson clover appears to over winter in good condition and produces a large amount of organic matter.

Winter Vetch.—This makes a very satisfactory cover crop and produces a large amount of green material. Vetch sometimes winter kills but where this is not encountered good results are secured. Rye and vetch make a very desirable combination cover crop and when plowed under add a large amount of organic material to the soil.

Canada Field Peas.—A splendid cover crop for northern lattitudes. This crop requires moist, cool

weather and under such conditions makes a heavy growth. May also be combined with oats or rye.

Other crops are especiallys uited to local conditions. Even under some conditions native weeds have been utilized and have given very gratifying results. The safest practice is to grow cover crops that are adapted to, and known to succeed in, the particular locality under consideration.

Making Peat Soils Productive

(*From page 9*)

"and you can't make it raise anything." "You wait and see," replied Mr. Northey, "and I'll show you how to farm."

And he did. It was in 1903 that he bought his first ton of potash. He applied this at the rate of 200 pounds per acre after the ground had been plowed, but before the corn had been planted. He didn't need to mark the spot where it had been applied; it showed up in the corn shortly after it was planted, and every day afterward made the contrast more pronounced. The neighbors all saw the difference. By fall the potash corn stood up 10 feet high, and yielded 65 bushels per acre; on the adjoining row the corn was less than 18 inches tall, in fact, in some of the worst places the soil was as bare as it was in the spring when it was planted—not even the sign of a weed to show that the soil was productive.

Since that time Mr. Northey has used potash regularly. And when he sent in his order he included the orders of his neighbors. Last year he applied 12 tons of potash on his own farms. He has used potash every year since 1903, with the exception of but one year, and that was during the war when the price was so high that it was prohibitive as well as unpatriotic to use it. This year he has already applied six tons of potash on corn land—three tons on the Wapsie farm and three tons on the Padget farm.

Now all of this peat land raises good corn. Originally it raised fine bluegrass pasture, fair oats, good timothy, but a very poor, and in some places no crop of either corn or barley. All these crops grow well now. One application of 200 pounds of potash per acre has been sufficient for all succeeding crops since the first applications were made. Two years ago one-half of a forty was treated, with the usual results on corn; last year, this land was seeded to barley, the treated half making 55 bushels per acre and the untreated half not over 25 bushels per acre. On another farm potash was applied five years ago. Oats were seeded last year. While oats do not respond so readily to potash as corn or barley there was nevertheless this difference—oats standing up with a stiff straw and yielding well, and oats with a rather lifeless straw, lodging and producing practically nothing.

HERE are the results on one of Mr. Northey's neighbors—George Baldwin. Last year four rows of corn treated with potash made an outstanding growth during the entire season. The results were similar to what Mr. Northey had secured—40 bushels per acre as against nothing. I saw also, on one of Mr. Northey's farms, a repetition of the same thing last year; here, where potash was used, as good a crop as the season would permit; there, on the untreated ground, nothing, not even nubbins; in fact, it looked as though he had stopped planting corn in the middle of the field.

Does an application of potash pay

on this type of soil? That is the important thing. Potash this year cost Mr. Northey $50 per ton; 200 pounds per acre, $5. Mr. Northey says that both barley and oats made a yield of 45 to 50 bushels per acre or even better; while as against this there was nothing. On the average taking the entire piece of land, oats made fully 50 per cent of an increase, while pasture made a much better growth, and barley the same average increase as indicated for the corn.

The opinion that the neighbors had of Mr. Northey has been considerably revised. He is no longer the visionary book farmer. Partly due to the success of his farming operations, he has increased the holdings of his land. But I have noticed that on each of the succeeding farms that he has bought he has found a place for potash, and has used it successfully and with profit. Mr. Northey is considered by his neighbors and by the people of the county generally as one of the most outstanding and successful farmers in this section of the state. Ask him what he thinks about potash and he will tell you that it has paid him good dividends on his land, where otherwise there would have been a heavy loss.

Potatoes and other root require considerable amounts of potash, and not so much nitrogen. It is very common knowledge that too much nitrogen either in a fertilizer or in manure, produces too much top; where top and leaf growth are desired, however, the nitrogen fertilizers are required. Phosphorous fertilizers have a tendency to increase the yield of grain or fruit and to make it earlier; potash also increases the yield, and adds to the stiffness of the straw in the case of the grains.

There is very little choice between the muriate or sulfate forms. Both, however, are much to be preferred to the kainit. During the last few years, Mr. Northey has used both the sulfate and muriate forms with the best results, but in any form he has found that it will pay where properly used.

How Many Leaves on an Apricot Tree?

(*From page 4*)

15,000 up to nearly 90,000. The following table gives the averages for the two trees of each treatment.

We notice that at the first count the long pruned trees had nearly twice as many leaves as the more severely pruned ones. The average size of the leaves was also considerably greater, so that the total leaf surface was very decidedly in favor of the lightly pruned ones.

In May the long pruned trees were still in the lead in total leaf surface, even though they did not have quite as many leaves, which was due to their leaves being of larger size. The great number of leaves on the heavily pruned trees at this time was due to the increased leaf-bearing surface, brought about by rapid extensions of the new shoots, which continued, until by fall the short pruned trees had slightly more leaf surface than the others, notwithstanding the fact that their leaves still averaged smaller. It should not be overlooked, however, that the long pruned trees were markedly ahead all through the important period when the fruit was forming and sizing up. The difference during the remainder of the season is hardly great enough to be significant. It is interesting to observe the gradual increase in the *size* of the leaves throughout the season, starting with less than two square inches and ending up with about three and a half.

One of the most evident differ-

ences between the two types of trees in the experiment was that the short pruned trees had a great number of vigorous one-year-old shoots (which had been cut back in pruning), and comparatively few fruit spurs; the long pruned trees, on the other hand, had an abundance of spurs and only a moderate number of vigorous one-year-old shoots. In order to accurately measure this difference in the two kinds of trees, the leaf counts were made in such a way as to keep the records separate for the leaves on growth arising from spurs, and for those on shoots arising from one-year wood. A third group was also used, consisting of leaves on new growth arising directly from old wood, such as the larger limbs and trunk.

The accompanying chart shows graphically the striking differences which were found by analyzing the records for May in this manner. Attention is drawn particularly to the relative number of leaves on spurs on the two types of trees. Since apricots are borne largely upon spurs, it is apparent that the spur system of the severely pruned trees was entirely inadequate. The yield records for the following season showed an average of about twenty-four pounds per tree for the short pruned trees, and about two hundred and twenty-six pounds for the others. The latter is an exceptionally good yield for a six-year-old tree.

The graph shows clearly that the short pruned trees greatly exceeded the long pruned in the number of leaves on growth from one-year-old wood, which was due to the much greater length of the new shoots arising on the heavily pruned trees. It is well to keep in mind that the plant food elaborated by leaves on spurs is mainly utilized for fruit production and storage, while that manufactured by the leaves on vigorously growing shoots is largely used up in continuing the length, growth of the shoots in question and hence little of it is available for the fruit or for storage.

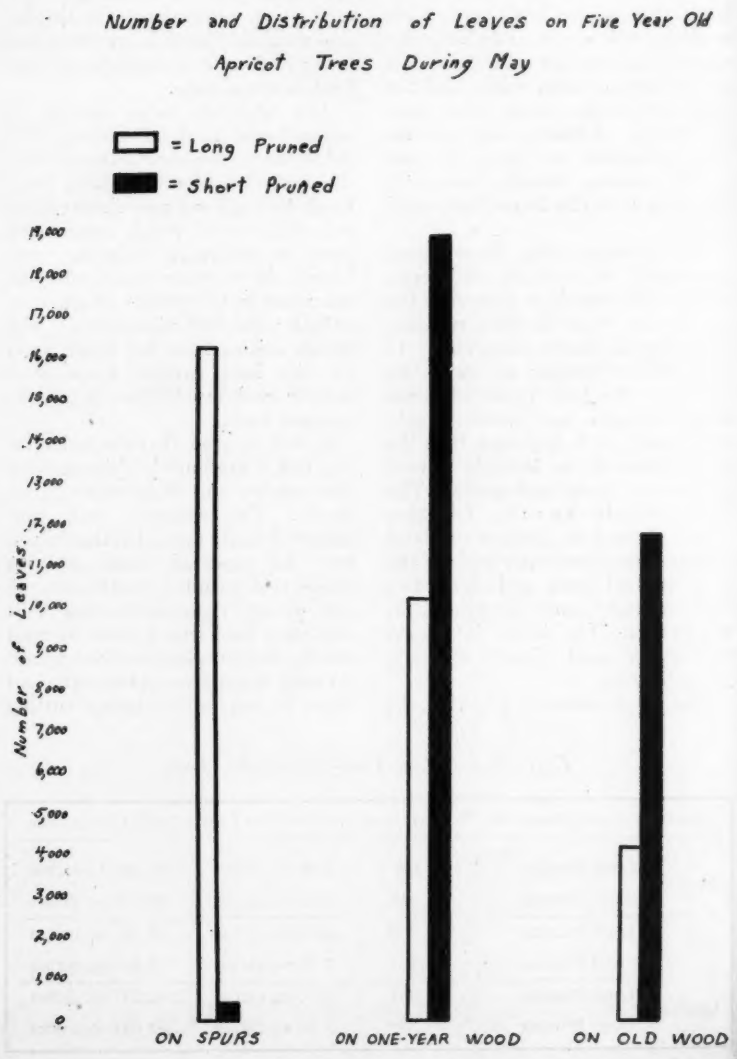
The relatively large number of leaves found on shoots arising from old wood on the short pruned trees shows that the heavy cutting back tends to force out new shoots from the older wood much more than does a moderate thinning out. These shoots were practically all succulent water sprouts which were of little value for fruit bearing. The shoots arising from the older wood on the long pruned trees were shorter and much more likely to produce fruit.

It will be seen that the behavior of a tree is profoundly influenced by the number and distribution of its leaves. The response just considered is fairly typical of that which may be expected from applying these two pruning treatments to any young vigorous bearing fruit tree, of a kind which bears its fruit mostly on spurs, as does the apricot. As long as the trees retain sufficient vigor to respond to heavy cutting

Leaf Area of Five-Year-Old Apricot Trees

Month	Pruning Treatment	No. of Leaves	Av. Area Per Leaf	Total Leaf Surface
April	Long Pruning	26,620	1.89 sq. inches	50,453 sq. inches
	Short Pruning	15,743	1.39 sq. inches	21,933 sq. inches
May	Long Pruning	30,660	2.63 sq. inches	80,820 sq. inches
	Short Pruning	31,123	2.39 sq. inches	74,546 sq. inches
October	Long Pruning	78,951	3.70 sq. inches	292,247 sq. inches
	Short Pruning	89,332	3.37 sq. inches	300,684 sq. inches

back with a burst of excessively long shoots, such a treatment is undesirable. As trees become older and weaker, the response to this same pruning treatment may be only short growth or, at most, shoots of moderate length. In this case the heavy pruning is not only desirable, but necessary. Pruning practices, then, should be based upon tree responses, rather than upon unchanging rules or customs which do not take into account the differences between individual trees.



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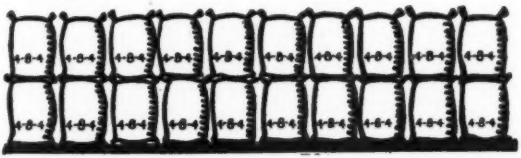

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